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B65D 75/36

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B8P PE3 PK10

(56) Documents cited
GB 2121384 A GB 1594590 A GB 0943498 A
GB 0671889 A GB 0430067 A US 4210250 A
US 3520472 A US 3506184 A

(58) Field of search
UK CL (Edition K) B8K KBC, B8P PE3 PK10
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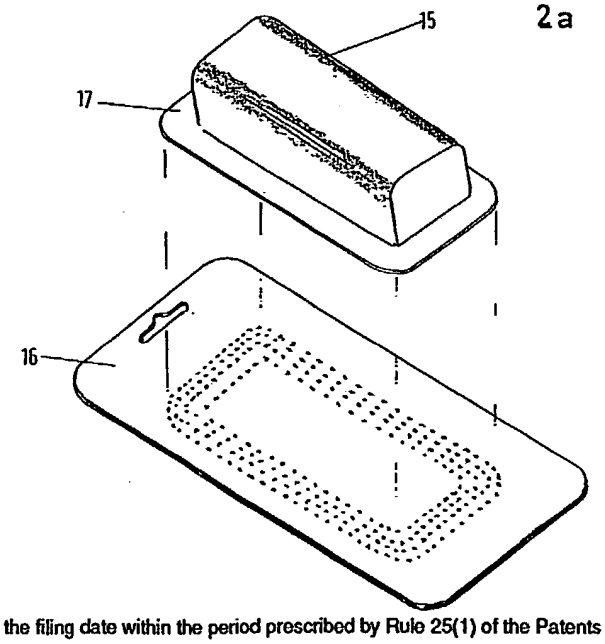
(54) Dot matrix application of adhesive for blister and skin packaging

(57) The components 15, 16 of a blister or skin package are jointed by heat sensitive adhesive applied in the form of a dot-matrix pattern.

'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER' AND 'SKIN' PACKAGING.

FIGURE 2.



2a

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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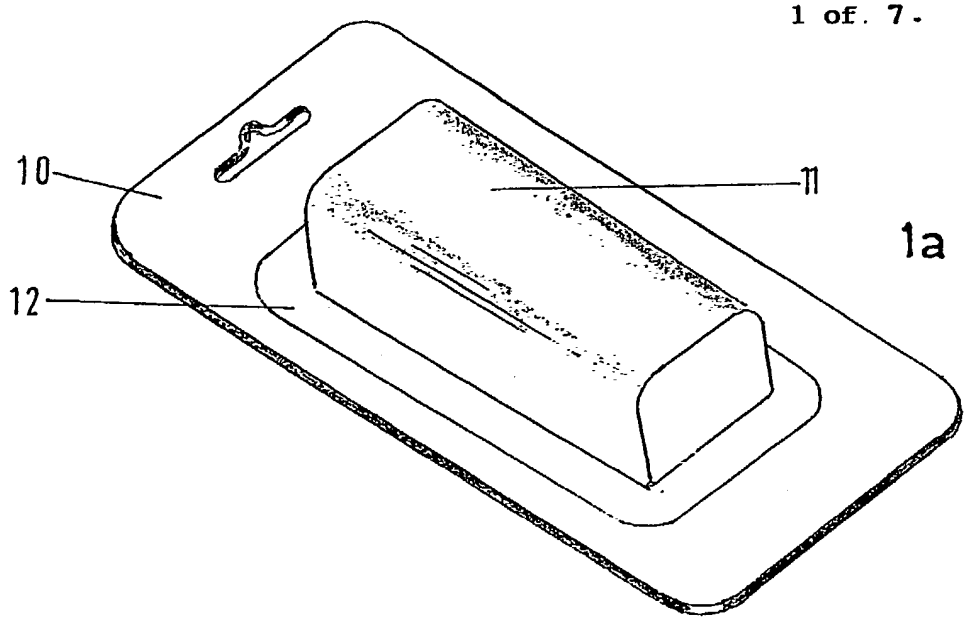
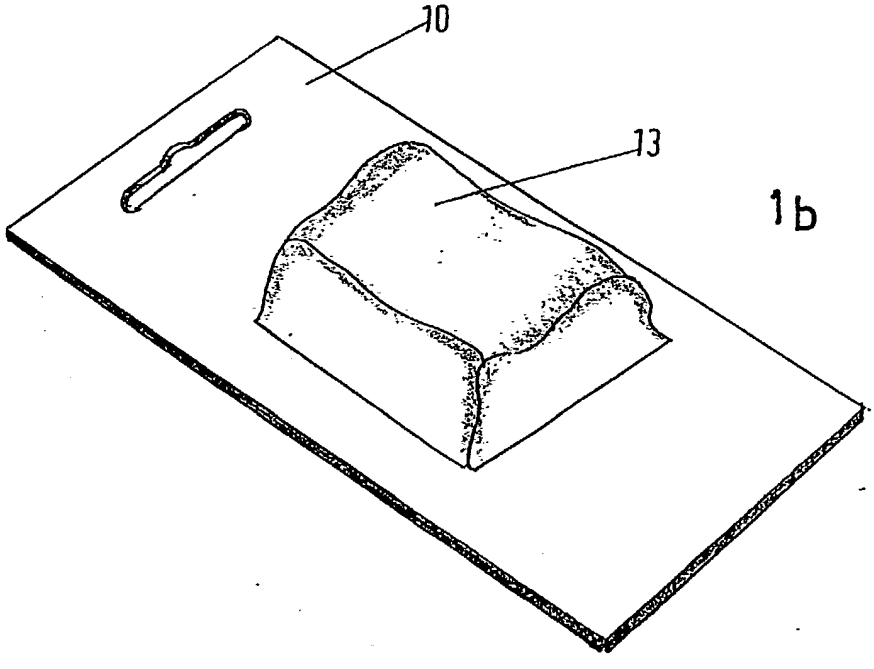
'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER' AND 'SKIN' PACKAGING.

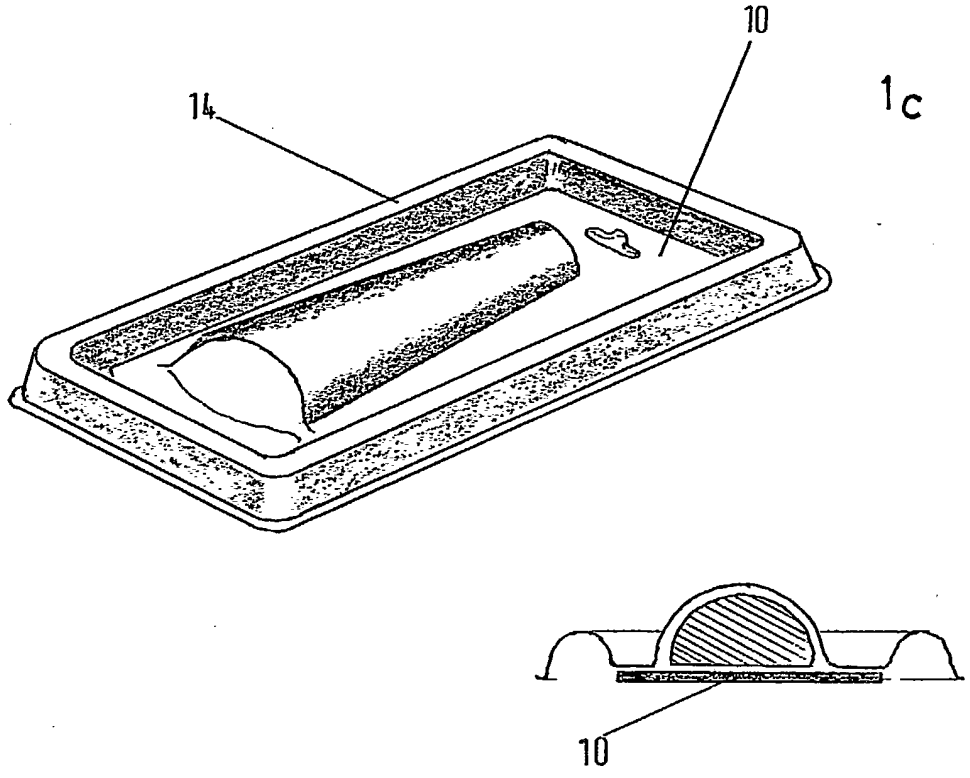
FIGURE 1.
1 of. 7.





'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER AND 'SKIN' PACKAGING.

FIGURE 1



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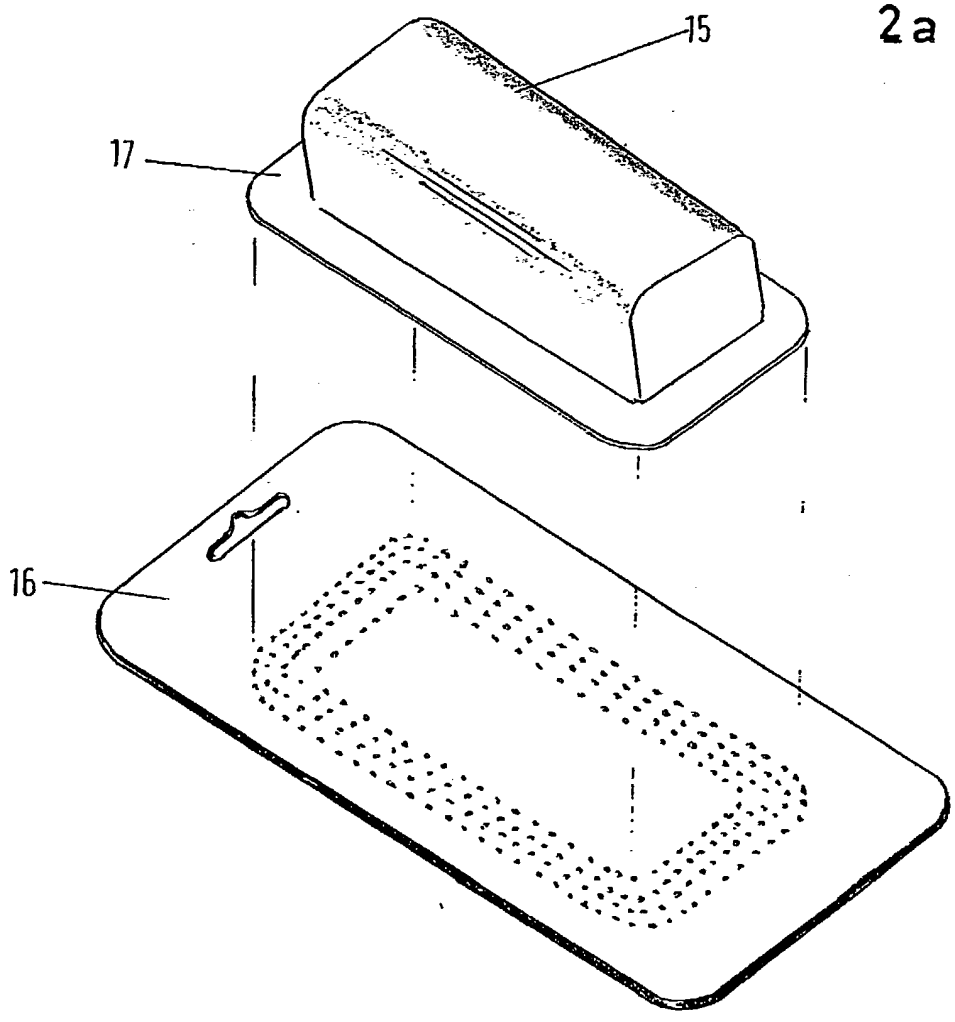
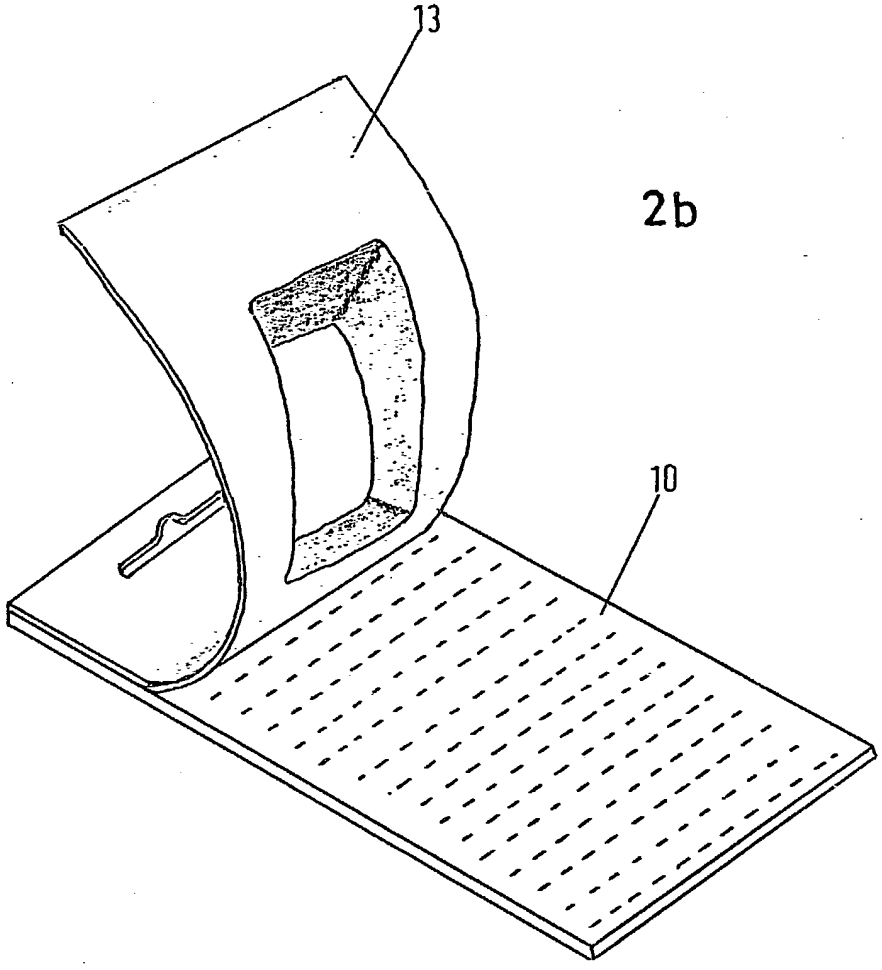


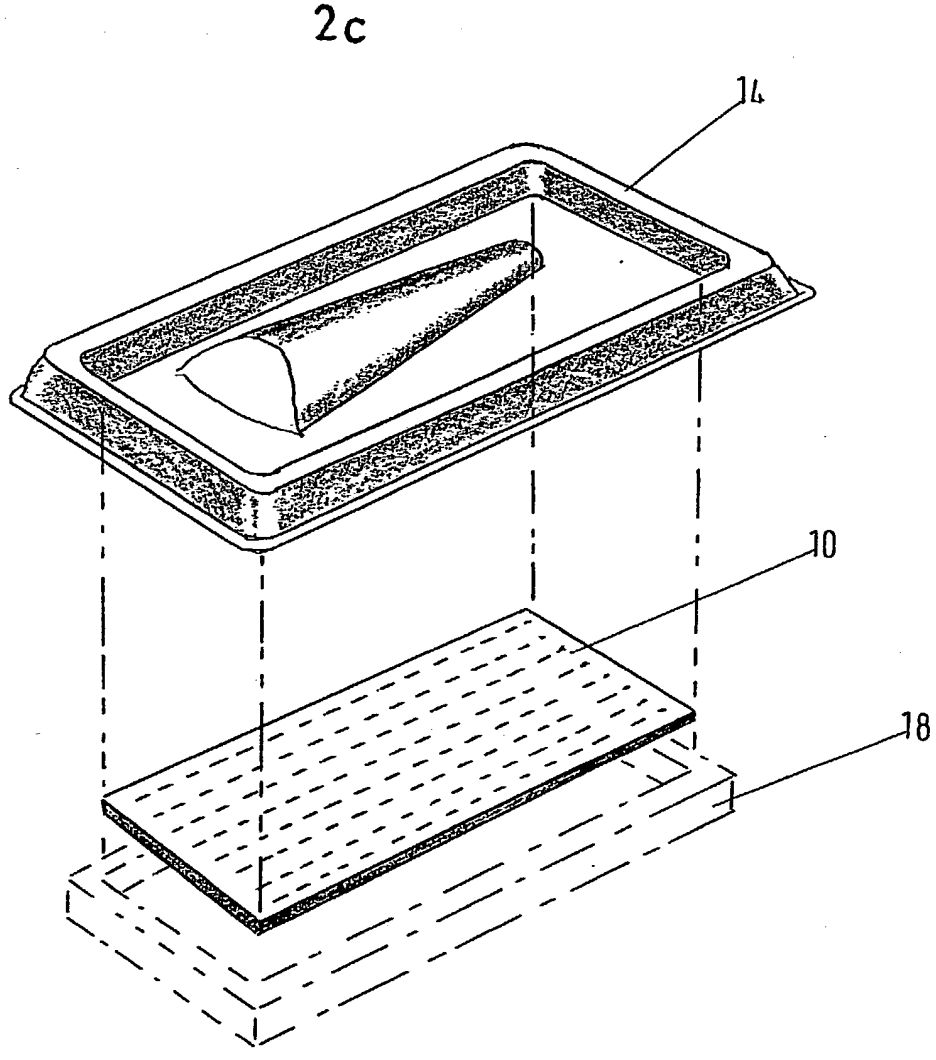
'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER' AND 'SKIN' PACKAGING.

FIGURE 2.
4 of 7.



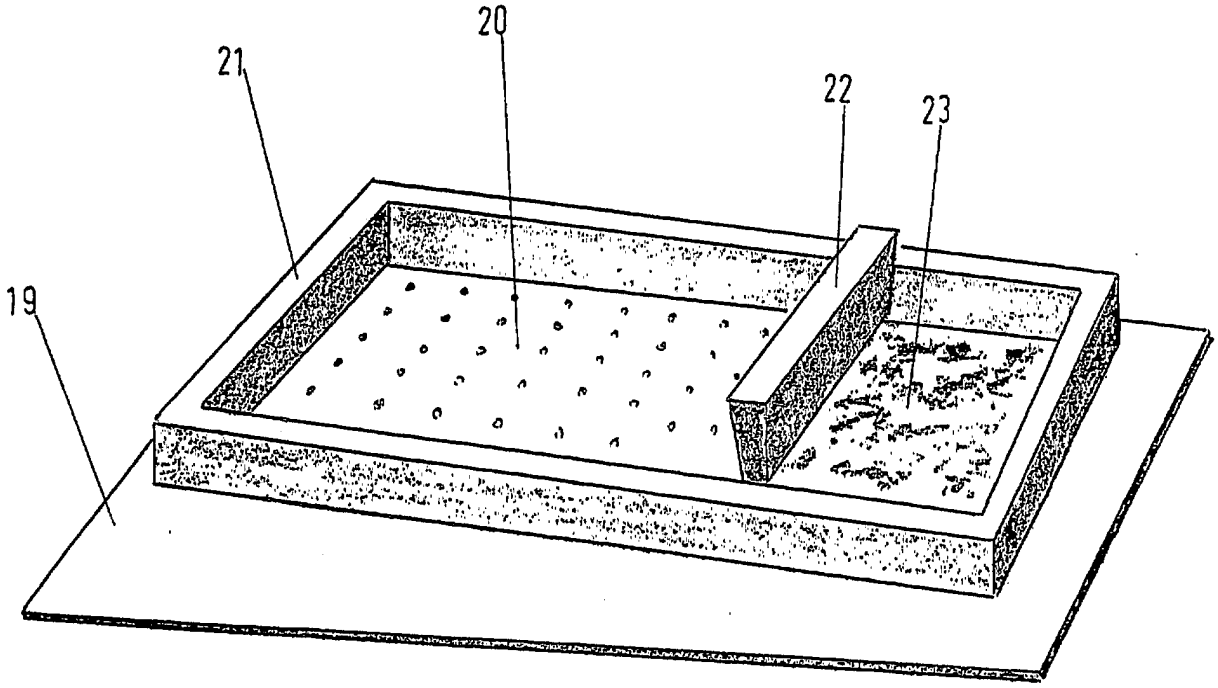
'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER AND 'SKIN' PACKAGING.

FIGURE 2.



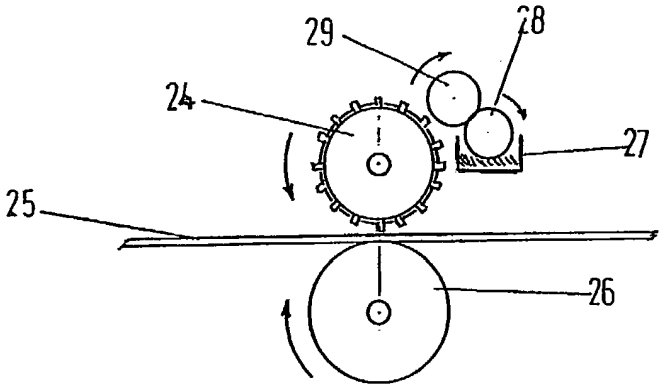
'SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER' AND 'SKIN' PACKAGING.

FIGURE 3.
6 of 7

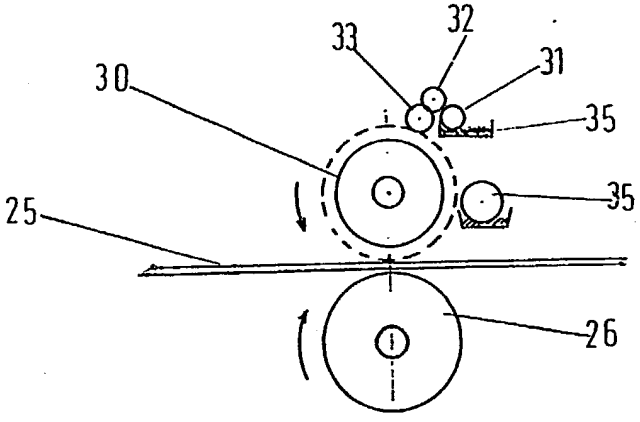


,SKINSTRIP' METHOD OF 'DOT MATRIX' APPLICATION OF ADHESIVE FOR 'BLISTER' AND 'SKIN' PACKAGING.

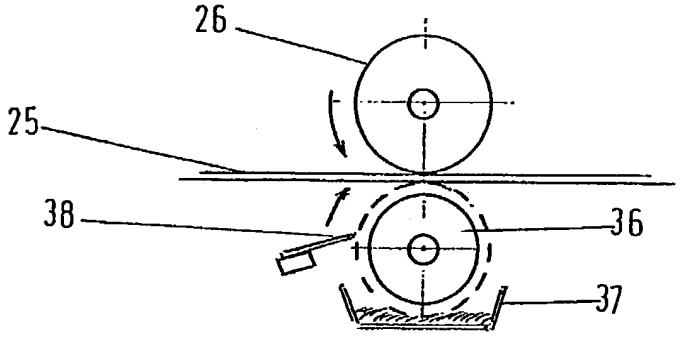
FIGURE 4.
7 of 7.



4a



4b



4c

Sheet 1

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

Field of the Invention

THIS INVENTION RELATES TO IMPROVEMENTS IN THE KNOWN METHODS OF APPLYING ADHESIVE TO BACKING CARDS FOR BLISTER AND SKIN PACKAGING OF PRODUCTS, SINGLY OR IN NUMBERS, THEREBY ENABLING BETTER SEPARATION OF THE COMPONENT PARTS OF A FORMED PACKAGE, ETC.

Background to the Invention

The availability of clear or transparent plastic film has enabled the packaging and presentation of "goods" for sale or transport to the customer to take on a new dimension. To be able to see the "goods" one is to purchase gives confidence to the purchaser and reduces the cost of packaging for the supplier. The traditional method of enclosing goods within a cardboard carton or box often presented problems both for the supplier and the purchaser. When "goods" can be seen prior to purchase they can be readily compared against an existing item should it, or they, be replacement components.

Known art of enclosing "goods" within a clear plastic film is described as "blister" or "skin" packaging and comprises of a pre-formed or an enclosure of plastic film attached by adhesive to a backing card - usually of cardboard.

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

There are several methods of causing the "blister" encapsulation or the "skin" or "skinform" enclosure to adhere to the backing card and the backing card itself can perform more than one function. It can contain instruction, usage direction or simply advertisement text or logos.

Adhesive can be applied to the backing card and the clear plastic "blister" or film either pressed on the the adhesive or drawn against it by vacuum "pressure".

It is one aspect of the present invention to reduce the quantity of adhesive necessary to effect adhesion between "blister" , "skin" and "skinform" packaging systems.

It is a second aspect of the present invention to enable the separation of the three said packaging systems and their backing cards to be made relatively easily and cleanly.

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

A specific embodiment of the invention will now be described solely by way of example, with reference to the accompanying drawings in which:

Figure 1 shows a "blister", "skin" and "skinform" pack enclosure.

Figure 2(a) illustrates a "blister" package which has been produced using a dot matrix application of adhesive.

Figure 2(b) illustrates a "skinpack" package which has been produced using dot matrix application of adhesive.

Figure 2(c) illustrates a "skinform" package which has been produced using dot matrix application of adhesive.

Figure 3 illustrates the "dot matrix" method of adhesive application to screen printing.

Figure 4 shows the "dot matrix" application of adhesive in Flexographic, Lithographic and Gravure procedures.

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

Description of the Preferred Embodiments

According to Figure 1, view 1a, there is provided a backing board 10 of suitable material, compressed cardboard, rigid or semi-rigid plastic or other material, to which a pre-formed plastic shape 11 is to be attached. The method of causing the shape 11 to adhere to the backing can take on several forms but is mainly applicable to beat sensitive adhesive. With the "blister" shape 11 form of enclosure, the flange 12, would provide the surface area to seal the shape/blister 11 to the backing board 10. Where a "skin" pack or "skinform" is provided to encapsulate "goods" the film of transparent plastic "skin" 13 or "skinform" 14 is bonded to the backing board 10 by heat sensitive adhesive.

In the example depicted in Figure 1, view 1b, the "skin" 13 or "skinform" 14 is drawn by vacuum against heat sensitive adhesive applied to the backing board. The suction applied through the porous material comprising the backing board 10 would be sufficient to cause the skin 13 or skinform 14 to adhere to the substrate or backing board 10.

In the three examples illustrated in view 1a, 1b, and 1c, a full coverage of the contact surfaces between substrate and the encapsulant would apply.

Sheet 5

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

It will be obvious that when it becomes necessary to remove the contents of the "blister" 11, "skin" package 13, or "skinform" package 14, the upper strata of the backing board 10 is likely to detach with the said packing medium.

It is similarly obvious that the whole periphery of the encapsulation - in each case would be coated in heat sensitive adhesive.

The embodiment of this invention provides for the heat sensitive adhesive to be applied in a series of regularly spaced dots - known by the trade as "dot matrix".

Referring now to Figure 2a the embodiment of this invention is illustrated whereby the placing of heat-sensitive adhesive is by "dot matrix" application.

In the illustration there is shown any pre-formed "blister enclosure shape 15 and a backing board 16. The "blister" 15 is constructed in clear semi-rigid plastic with a flange 17 formed about the periphery of the "blister" 15.

The backing board 16 is shown immediately below the "blister" 15 to indicate the pattern of heat-sensitive adhesive dots placed in "dot matrix" form to the profile of the flange 17.

Sheet 6

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

In this embodiment the "goods" (unseen) would be placed within the area bounded by the "dot matrix" application. In this method of encapsulation positive pressure would be applied about and over the flange 17 at the same time as heat is provided to cause the adhesive to bond the "blister" 15 and the backing-board 16 together.

It will be obvious that an adequate bond will be achieved with less expenditure of adhesive and with an ability to separate the "blister" 15 and board 16 with little or no amount of the board material being torn away by the flange 17.

Referring to Figure 2b the embodiment of this invention is again illustrated with reference to Skinpackaging. Here the pack is shown in the "peeled open" position, the skin 13 having been drawn down and bonded to the backing board 10 by heat and vacuum.

Referring to Figure 2c the embodiment of this invention is further illustrated referring to the Skinform system. The package is created by the plastic material 14 being formed over the product and bonded to the backing board 10 as previously stated by heat and vacuum. The outside shape of the final package being controlled by the plinth mould 18.

Sheet 7

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

According to Figure 3 there is shown a method whereby the "dot matrix" application of adhesive may be used in screen printing.

A substrate 19 comprising of a backing board of cardboard or other material to which either a "blister" pack/shape 15, "skin" pack 13, or "skinform" pack 14 would be fixedly attached on completion of the screen-printing operation.

A fine mesh of silk, Nylon or other material 20 is provided as the print screen. The upper surface of the screen is treated with an impermeable coating except in the areas through which ink is subsequently forced on the the substrate 19 below.

Common to the process of screen-printing is the frame 21 and the adhesive in "dot matrix" format, is forced through the screen by the manual or mechanical application of the "squeegee" 22 brushed across this layer of adhesive 23.

The embodiment of this invention is applicable to various forms of printing, comprising of flexographic, lithographic and gravure systems.

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

Figure 4 illustrates schematically each process in turn and shows as View 4a, the flexographic system where the flexographic stylus 24 is touching the surface of the substrate 25. A pressure roller 26 maintains the contact pressure between the substrate 25 and the stylus 24. Above and alongside the stylus 24 is provided an adhesive reservoir 27 with a pick up and a transfer roller 28, 29. Adhesive is transferred from roller 29 to the stylus 24 which will deposit the adhesive in a "dot matrix" pattern on to the substrate 25.

Figure 4 view 4b illustrates schematically the lithographic process where the substrate 25 is shown between the lithoplate roller 30 and the pressure roller 26.
Sited above and to one side is the cluster of rollers 31,32, 33 which pick up and transfer the adhesive in the reservoir 35 to the lithoplate roller 30. The photochemically etched plate would provide the "dot matrix" pattern of adhesive application to the substrate 25. A damping roller 35 is provided near the central axis of the lithoplate roller 30.
The third method of printing in which the application of "dot matrix" adhesive may be introduced is shown schematically in Figure 4 view 4c where the Gravure printing roller 36 is indicated positioned below the substrate 25.

"SKINSTRIP" METHOD "DOT MATRIX" APPLICATION OF ADHESIVE FOR BLISTER AND SKIN PACKAGING.

The pressure roller 26 in this instance is sited above the substrate 25 and the adhesive reservoir 37 positioned beneath the Gravure printing roller 36. The "dot matrix" application surfaces would be provided on the said roller 36 and surplus quantities of adhesive to the roller 36 would be removed by the wiping blade 38 positioned to one side of the said roller 36 and slightly above its central axis.

This description has merely indicated the basic principles of the four processes of printing and is not concerned with the printing operation itself. The descriptions are included to illustrate the adaptability of the "dot matrix" method of applying adhesive to such known printing processes.

This specification of the embodiment of the invention has shown that heat-sensitive adhesive may be applied to printing processes in several forms and particularly to the operation of "blister","skin" and "skinform" packaging. The embodiment of the invention shows that a quantity of adhesive needed to affect a satisfactory bond between any substrate and its clear plastic enclosure of "goods" can be reduced significantly and the subsequent removal of the plastic enclosure can be executed with less difficulty and less damage to the substrate.

CLAIMS

1. To enable better separation of the component parts of a formed package. The heat sensitive adhesive is applied in the form of a "Matrix Pattern"

2. Adhesive application, as claimed in 1., wherein by applying the adhesive coating in the form of "Dot Matrix", thereby leaving areas of the backing board/card uncoated with adhesive. The plastic film/blister will break away from the individual dots of adhesive as the tear off force is applied, rather than pulling off areas of backing board substrate, leaving these bonded to the plastic waste material.

3. Adhesive application, as claimed in 1 & 2, wherein the size, shape and number of these adhesive patterns can be variable. The design is dependent on the weight and size of goods being packed.

4. "Dot Matrix" Adhesive System gives savings on adhesive content from "Prior Art" continuous coating.

Amendments to the claims have been filed as follows

1. A Dot Matrix system of adhesive application to substrate material to achieve better separation of film packaging therefrom.

2. A Dot-Matrix System of adhesive application to substrate material to reduce the quantity of adhesive required to achieve an appropriate bond between film packaging and the substrate material.

3. A Dot-Matrix system of adhesive application to substrate material as claimed in 1 and 2 which can be achieved by direct pressure or alternatively by vacuum attraction.

4. A Dot-Matrix system application to substrate material as claimed in 1,2 and 3 which makes use of heat-sensitive adhesive.

5. A Dot-Matrix system of adhesive application to substrate material as claimed in the preceeding claims 1 to 4 which enables objects enclosed beneath the film packaging to be clearly visible.

6. A Dot-Matrix system of adhesive application to substrate material as claimed in each of the preceeding claims 1 to 5 which can be applied to "Skin", "Blister" and "Skin Form" systems of packaging enclosures.

7. A Dot-Matrix system of adhesive application to substrate material as claimed previously in the foregoing claims which includes cardboard, rigid and semi-rigid plastic, screen-printed silk and any other material as a substrate.

8. A Dot-Matrix system of adhesive application to substrate material as claimed in each of the foregoing claims which will include application of the adhesive to the substrate by stylus of flexographic apparatus, by lithoplate roller of lithographic processes and by printing roller in the Gravure printing process.

9. A Dot-Matrix system of adhesive application to substrate material substantially as herein described with reference to Figures 1 to 4 of the accompanying drawing.

Patents Act 1977
Examiner's report to the Comptroller under Section 17 (The Search Report)

Application number

GB 9207944.1

Relevant Technical fields

(i) UK Cl (Edition K) B8P (PE3, PK10)
B8K (KBC)

(ii) Int Cl (Edition 5) B65D 75/36

Search Examiner

MIKE HENDERSON

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

29 MARCH 1993

Documents considered relevant following a search in respect of claims 1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2121384 A (NIPPON RUBBER CO LTD) - whole specification relevant	1-4
X	GB 1594590 (TAYLOWE LTD) - whole specification relevant	1-4
X	GB 943498 (MINNESOTA MINING AND MANUFACTURING CO) - whole specification relevant	1-4
X	GB 671889 (JOHNSON & JOHNSON) - whole specification relevant	1-4
X	GB 430067 (LINDGREN) - whole specification relevant	1-4
X	US 4210250 (YALE) - whole specification relevant	1-4
X	US 3520472 (KUKULSKI) - whole specification relevant	1-4
X	US 3506184 (BARNES) - whole specification relevant	1-4

Category	Identity of document and relevant passages	Relevant to claim(s)

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X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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